

***Atraster heterodus* (Lebedev and Paruchin, 1969) and  
*Polylabris tubicirrus* (Paperna and Kohn, 1964) (Monogenea) from  
*Diplodus argenteus* (Val., 1830) (Teleostei: Sparidae) from Brazil**

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**ABSTRACT:** *Atraster heterodus* Lebedev and Paruchin, 1969, and *Polylabris tubicirrus* Paperna and Kohn, 1964, are reported from a new host *Diplodus argenteus* (Val., 1830) (Sparidae) from the Rio de Janeiro coast, Brazil, with new morphological data on *A. heterodus* using scanning electron microscopy. The holotype of *P. tubicirrus* is redescribed, and *Polylabris diploidi* is considered its new synonym.

**KEY WORDS:** *Atraster heterodus*, *Polylabris tubicirrus*, Monogenea, fish, gills, parasite, Brazil, SEM.

*Atraster heterodus* Lebedev and Paruchin, 1969, from *Sparus heterodus* (Sparidae) from Walvis Bay, Namibia, southwest Africa, also was reported from *Diplodus sargus*, *Diplodus annularis*, and *Diplodus vulgaris* (Sparidae) from Sète, France (Euzet and Maillard, 1973), and *D. sargus* from the Tenerife Islands (Lopez-Roman and De Armas Hernandez, 1989). *Polylabris tubicirrus* Paperna and Kohn, 1964, was reported from *D. annularis*, *D. sargus*, *D. vulgaris*, and *Sparus aurata* from the Mediterranean. In this paper, we present new host and geographical records for these monogeneans, as well as new morphological data for *A. heterodus* using scanning electron microscopy (SEM), and a new synonym for *P. tubicirrus*.

### Materials and Methods

The fish were collected at Copacabana beach, Rio de Janeiro, Brazil. Monogeneans were fixed in 5% buffered formalin under slight coverglass pressure and stained with Mayer's Carmalum (Humason, 1972). For SEM studies, living specimens were fixed for 1 hr in a solution containing 2.5% glutaraldehyde and 4% paraformaldehyde in seawater. Samples were postfixed in 1% osmium tetroxide in 0.1 M sodium cacodylate, 0.8% potassium ferricyanide, 5 mM CaCl<sub>2</sub>, and 3% sucrose, pH 7.2, for 2 hr. Specimens were dehydrated in graded ethanol, critical point-dried using CO<sub>2</sub>, coated with gold, and observed on a DSM 962 scanning electron microscope. Measurements are presented in micrometers with means in parentheses followed by the number measured. *Atraster heterodus* numbers Ti 182 and Ti 183 and *Polylabris diploidi* number Tc 178 from the Helminthological Collection of the Muséum National D'Histoire Naturelle de Paris and *Polylabris tubicirrus* number 29.837 from the Helminthological Collection of Instituto Oswaldo Cruz also were studied.

### Results

#### *Atraster heterodus* Lebedev and Paruchin, 1969 (Figs. 1–10)

**HOST:** *Diplodus argenteus* (Val., 1830), Sparidae.

**SITE:** Gills.

**LOCALITY:** Copacabana beach, Rio de Janeiro, Brazil.

**STUDIED MATERIAL:** Sixty-five specimens collected from 25 fish (prevalence = 64%, mean intensity = 4). CHIOC n. 33.357a–b, 33.358, 33.359, 33.360, and 33.361.

**REDESCRIPTION:** Body 3,000–6,160 (4,370) 19 long, 161–724 (464) 19 wide at ovarian level. Anterior part of body slender, with 3 groups of apical glands. Two internal suckers 30–46 by 53–108 (37 by 86) 15, rounded by small flanges, divided into 2 almost equal parts by muscular walls. Pharynx 23–46 by 23–46 (34 by 36) 16. Haptor 1,155–3,942 (2,022) 19 long with 63–100 pairs of clamps. Larger clamps 34–92 by 60–92 (48 by 96) 9, smaller 23–32 by 27–46 (29 by 42) 4. Sixteen to 35 (27) 10 postovarian testes. Sinuous vas deferens opens into anterodorsal part of muscular genital atrium. Genital atrium 115–230 by 106–190 (153 by 150) 16 situated at 152–539 (336) 15 from anterior end has 2 forcep-like spines 67–115 (90) 19 long and 11–18 (14) 19 median spines 55–83 (66) 19 long arranged in 2 semicircles. Sclerotized plate 23–34 by 28–46 (28 by 36) 5 lying in the bottom of atrium in a muscular pad articulated with 6–11 (8) 17 small and strong spines 25–69 (45) 17 long, acting like jaws.

Ovary long bent anteriorly. Two dorsal vagi-

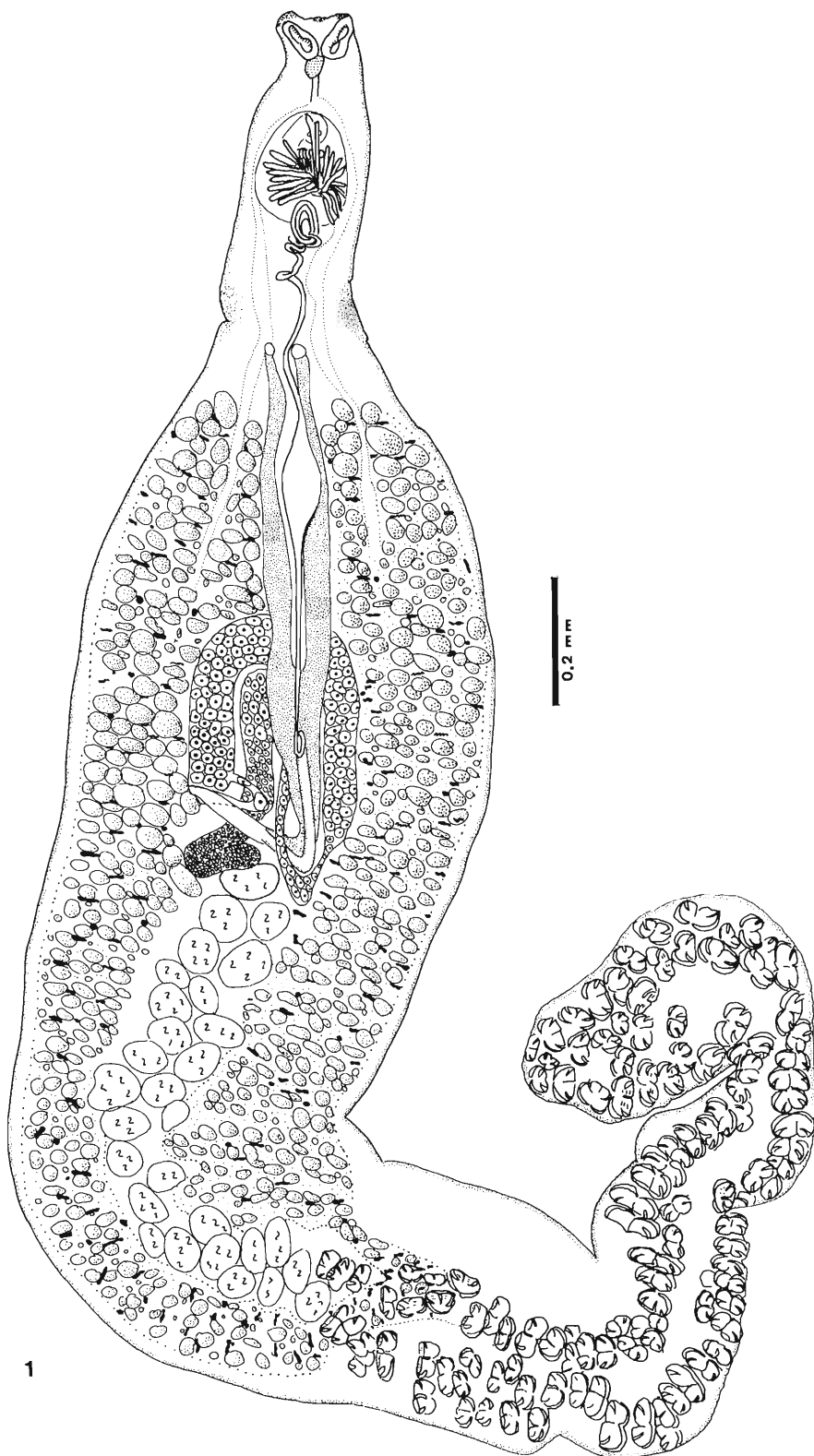
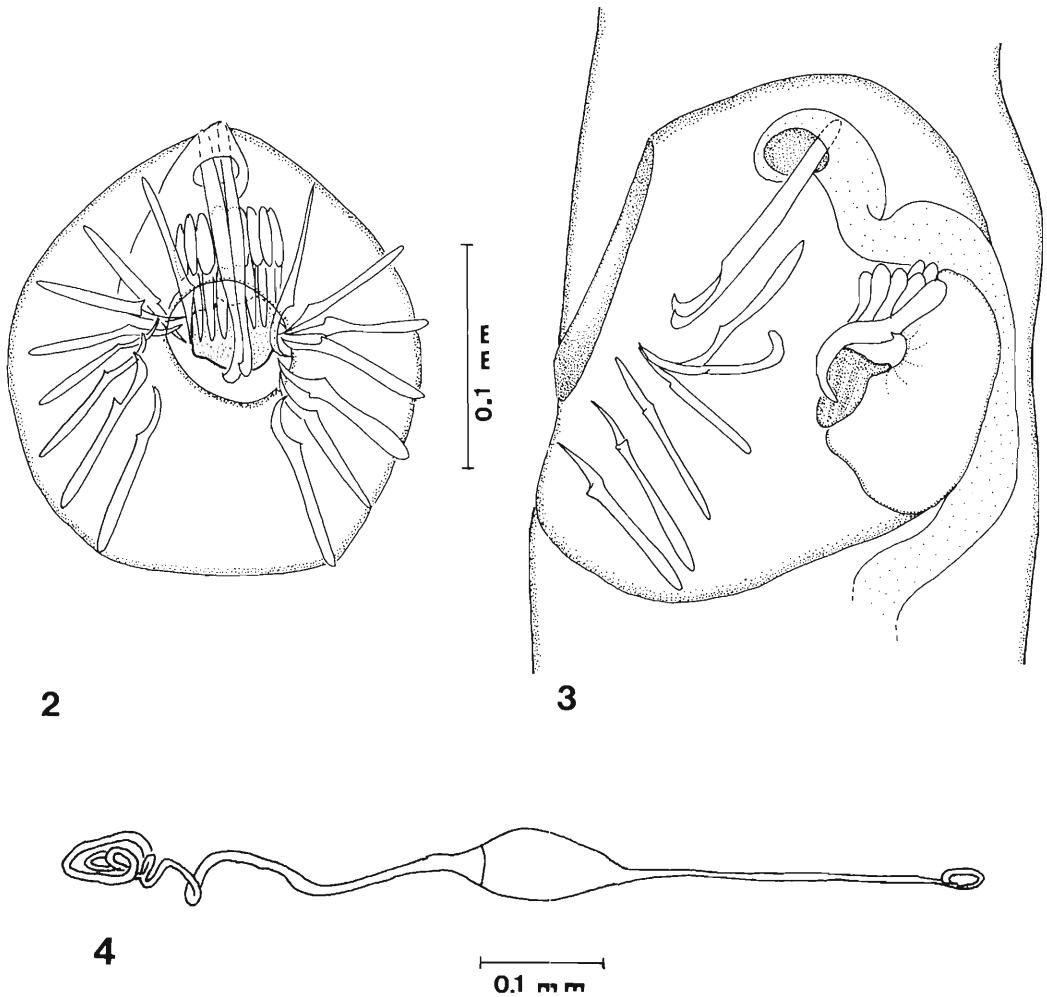


Figure 1. *Atristaster heterodus*: CHIOC n. 33.358, total view.

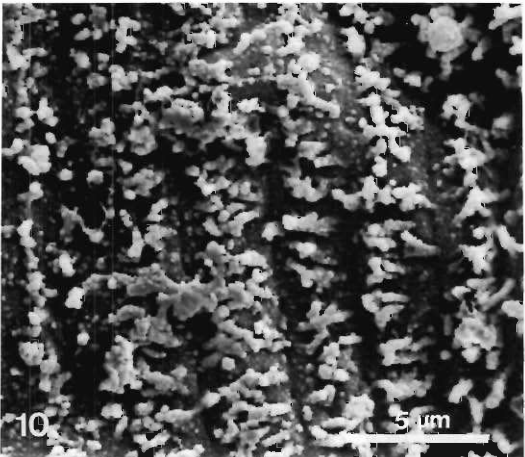
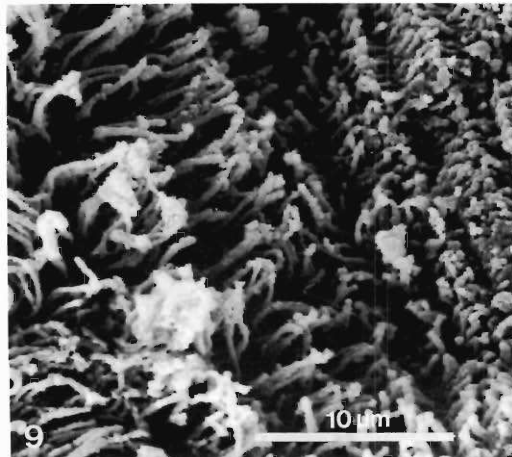
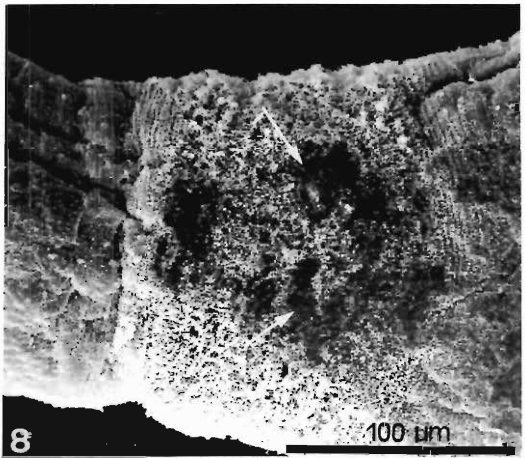
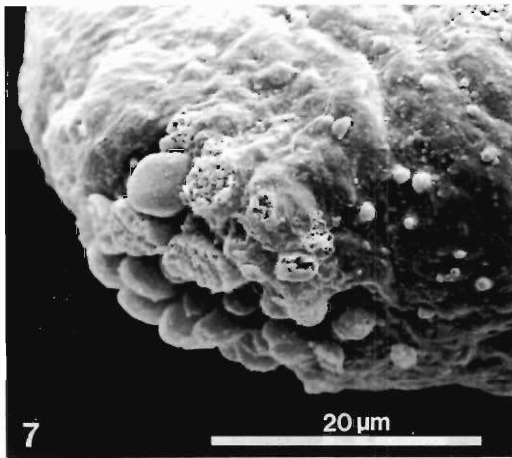
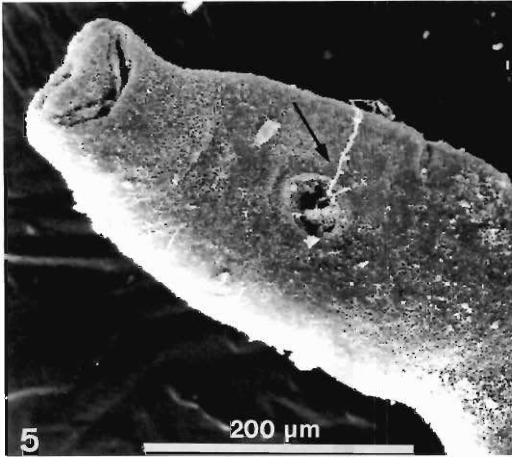


Figures 2-4. *Atriaster heterodus*: 2. Ventral view of genital atrium. 3. Lateral view of genital atrium. 4. Egg.

nae open at 246-707 (517) 10 from anterior end. Eggs 115-170 by 55-78 (141 by 67) 3 with anterior filament long and coiled; posterior filament 258-368 (321) 4 long. Uterus opens on posterior side of genital atrium. SEM study showed anterior glands of prohaptor disposed in 2 large lateral groups and a small one around the buccal aperture. Constricted area of body just behind genital atrium has a laterodorsal band with numerous small filaments covering the vaginae. In the middle of this band, filaments are larger, decreasing in length gradually toward the extremities, always disposed in horizontal rows. In the round genital atrium, 2 forcep-like spines were observed with some of the medial spines around

them tangled with filaments like those around vaginae.

**REMARKS:** Lebedev and Paruchin (1969) described *Atriaster heterodus* from *Sparus heterodus* collected in southwestern Africa, and Mamaev (1984) examined the type specimens. Their descriptions of genital atrium includes 2 long spines, a range of 14-20 median ones measuring 65-90 in length disposed in 2 semicircles, and 5-9 small spines 17-30 in length. Euzet and Maillard (1973) redescribed this species collected from *Diplodus sargus*, *D. annularis*, and *D. vulgaris* from the Mediterranean. They discussed the differences in the number of clamps (80-105 against 70 pairs showed by Lebedev and Paru-



Figures 5–10. *Atristaster heterodus*: 5. Ventral view of prohaptor and genital atrium with arrow on egg filament. 6. Spines (arrows) in genital atrium. 7. Lateral glands of prohaptor. 8. Detail of vaginal apertures (arrows). 9. Longer filaments in the middle of the band. 10. Smaller filaments disposed in rows.

chin [1969]), the smaller number of testes (14–22 instead of 30–40), and the slightly smaller size of genital atrium spines. They considered these differences as host and geographical adaptations. Mamaev (1984) confirmed the presence of 2 dorsal vaginae in type specimens. Lopez-Roman and De Armas Hernandez (1989) reported *A. heterodus* from *D. sargus* in the Tenerife Islands as a new geographical record. The specimens collected from *D. argenteus* from Rio de Janeiro show slight differences in the numbers of genital atrium spines, although they have the same distribution. Examination of Euzet and Maillard's specimens showed no significant differences. In earlier studies of *A. heterodus*, the constricted area near vaginae was described as having a thick tegument with ridges. The SEM study showed that the ridges are, in reality, filaments of different sizes disposed in symmetrical rows. Although we did not observe mating, we suppose that the spines arranged in semicircles project outside the genital atrium with the genital plate and its small spines grasp the filaments around the vaginae. Some of these filaments were found around the spines of the genital atrium. Concurrently, 2 longer forcep-like spines protrude, expanding the 2 vaginae and enabling the entry of sperm from the vas deferens. *Atriaster heterodus* is now re-described with new morphological data on SEM with new host record and geographical distribution.

***Polylabris tubicirrus* Paperna and Kohn, 1964**

(*P. diplodi* Lebedev and Paruchin, 1969, syn. n.)

(Figs. 11–13)

**Type Redescription**

HOST: *Diplodus annularis* L.

SITE: Gills.

LOCALITY: Littoral zone of the Israel coast, Mediterranean.

STUDIED MATERIAL: Holotype n. 29.837 from the CHIOC.

REDESCRIPTION: Microcotylidae, Prostato-microcotylinae. Body lanceolate 2,690 long, 550 wide at ovarian level. Haptor 1,540 long reaches the testes level tapering posteriorly with 116 clamps of typical microcotylid arranged in 2 rows linked anteriorly. Clamps dissimilar in size, be-

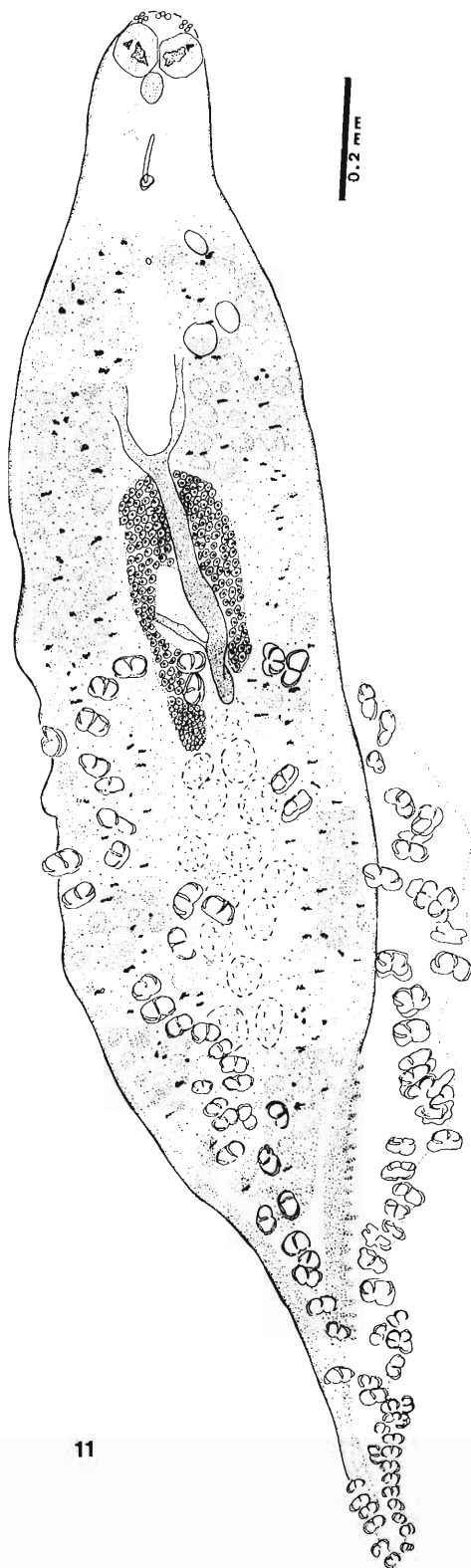


Figure 11. *Polylabris tubicirrus*: total view of holotype CHIOC n. 29.837.

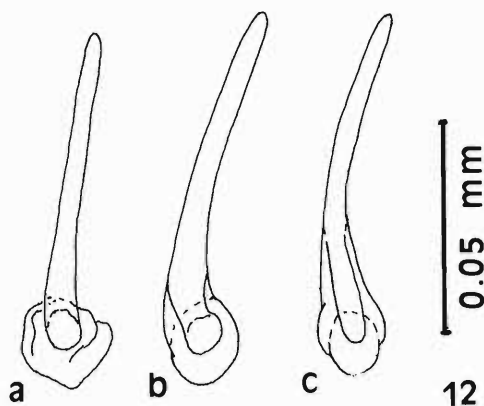


Figure 12. *Polylabris tubicirrus*: Cirrus. a. CHIOC n. 29837. b. MNHN n. Tc 178. c. CHIOC n. 33.362.

coming progressively smaller posteriorly; larger clamps 34–39 by 64, smaller 20–23 by 32. Three groups of small glands disposed in anterior end of body, followed by 2 prohaptor suckers 64–66 long by 69 wide, unequally septate. Pharynx subspherical 40 in diameter. Intestinal crura ramified extending into the haptor. Due to the strong compression of specimen, clamps are scattered and testes were slightly visible. Tube-like cirrus 80 long situated 277 from anterior end. Ovary pretesticular. Dorsomedian vaginal aperture just posterior to level of cirrus at 361 from anterior end.

#### Main Measurements of New Specimens of *P. tubicirrus*

HOST: *Diplodus argenteus* (Val., 1830), Sparidae.

SITE: Gills.

LOCALITY: Copacabana beach, Rio de Janeiro, Brazil.

STUDIED MATERIAL: Three specimens collected from 25 fish (prevalence = 12%). CHIOC n. 33.362 and 33.363.

REDESCRIPTION: Total body length 3,742–4,446 (4,199) 3 and width at ovary level 416–585 (472) 3. Oral suckers 66–85 by 85–94 (75 by 91) 3, pharynx 41 by 41. Intestinal crura ramified. Haptor 1,540–2,000 (1,796) 3 long with 122–128 (125) 3 clamps. Larger clamps 39–46 by 74–78, smaller 25–30 by 37–39. There are 13–15 postovarian testes. Tube-like cirrus 76–90 (82) 3 long. Genital atrium opens at 322–339 (332) 3 from anterior end. Vagina median at 368–440 (402) 3 from anterior end. Eggs 170–184 by

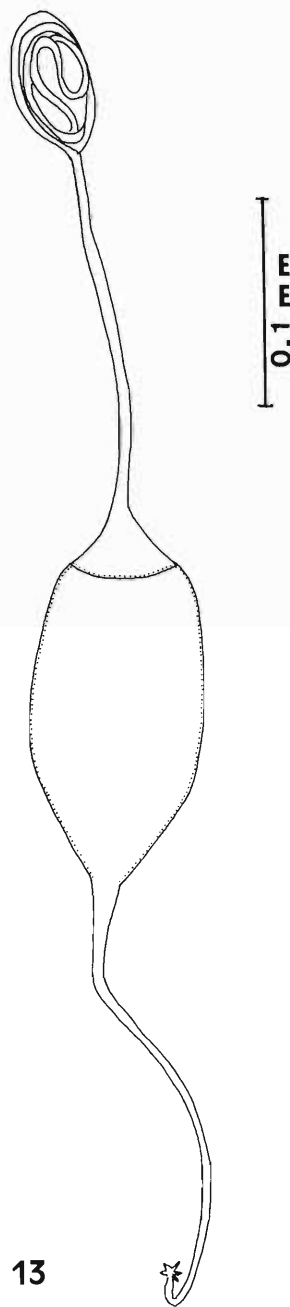


Figure 13. *Polylabris tubicirrus*: CHIOC n. 33.362, egg.

69–87 (177 by 81) 3 with anterior filament coiled and posterior one 198–241 (215) 3 long with small digitiform processes at the end.

REMARKS: *Polylabris tubicirrus* was first re-

ported from *Diplodus annularis* in the Mediterranean Sea. Noisi and Euzet (1979) also reported this species from *D. sargus* in the Mediterranean, and Silan et al. (1985) in the same area found it on *D. sargus*, *D. annularis*, and *D. vulgaris* and also on farmed gilt head sea breams, *Sparus aurata*. *Polylabris* was created by Euzet and Cawet (1967) with *P. diplodi* as the type species, collected from *D. sargus*, *D. annularis*, and *D. vulgaris* also from the Mediterranean. It was later reported by Lopez-Roman and Guevara Pozo (1973) on *D. sargus* and *D. vulgaris* from the Granada coast and by Lopez-Roman and De Armas Hernandez (1989) on *D. sargus* and *D. vulgaris* and on *Puntazzo puntazzo* and *Oblada melanura* from the Spanish coast. Mamaev and Paruchin (1976) presented a new diagnosis for *Polylabris* (type species *P. diplodi*), including the new combinations *P. kuhliae*, *P. maomao*, *P. acanthogobii*, *P. gerres*, *P. acanthopagri*, and *P. tubicirrus*. Ogawa and Egusa (1980) emended the diagnosis of Prostatomicrocotylinae, confirming *P. diplodi* as the type species of the genus. Mamaev (1986) listed the species of *Polylabris* with *P. diplodi* as the type species and *P. tubicirrus* as species inquirenda. Comparing the type specimens of *Polylabris tubicirrus* and *P. diplodi*, no significant differences were found, although in *P. tubicirrus* the position of the clamps is slightly distorted because of contraction. Considering that in both species the structure of cirrus and clamps are equivalent, the hosts are many, and both were described from the same geographical region, we propose that *P. diplodi* be considered a junior synonym for *P. tubicirrus*. This species is reported for the first time from the Rio de Janeiro coast, southwest Atlantic ocean, in the new host *Diplodus argenteus*.

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